REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Claim Rejections - Section 103(a)

The Office Action rejected claims 2-19, 13, 17, 20-40 and 45 under 35 U.S.C. 103(a) as being unpatentable over Dobbins et al. in view of Bare.

With respect to claim 3, the Office Action asserts that Dobbins et al. teach a method of establishing explicit constrained edge-to-edge paths. Applicant respectfully disagrees. Dobbins et al. neither teach nor suggest explicit constrained edge-to-edge paths. In fact, Dobbins et al. teach distributed connection-oriented services for switch communication networks which teaches directly away from constrained path routing.

The Office Action further asserts that Dobbins et al. teach provisioning at least one OSPF router in the network that supports constraint path setup with traffic engineering route exchange router functionality. Applicant respectfully disagrees. As note above, Dobbins et al. teach a distributed routing protocol in which routes are distributed in each switch. This teaches directly away from TE-X functionality.

The Office Action further asserts that Dobbins et al. teach querying the nearest of the at least one TE-X to obtain an explicit edge-to-edge path satisfying specified traffic engineering constraints. In the referenced text, Dobbins et al. teach that "with each access switch having its own locally learned mappings in the directory, there is a "virtual directory" which provides a scaleable, demand-based mechanism for distributing directory mappings through the switch domain". (Column 2, lines 60-63) Again, the cited reference teaches directly away from the claimed invention.

The Office Action states that the Dobbins et al. reference does not teach unicasting LSAs to only the nearest [TE-X] but does teach multicasting LSA for discovery and then retransmitting unicast LSA updates. However, the cited text states that "In order to make the flooding procedure reliable, flooding advertisements are acknowledged "link state acknowledgement packets". If retransmission of certain advertisements is necessary, the

retransmitted advertisements are carried out by unicast link state update packets." (Column 14, lines 57-64). Consequently, as would be understood by any person of skill in the art, retransmission is only effected when an advertisement acknowledgement is not received. However, as taught in column 15, lines 7-8, "All link state advertisements are flooded throughout the switch domain". Consequently, not only does Dobbins et al. teach flooding all link state advertisements throughout the switch domain, Dobbins et al. further teach that each advertisement must be acknowledged. This is directly contrary to the spirit of the claimed invention and teaches directly away from the claimed invention.

The Office Action further asserts that Bare teaches sending traffic engineering link state advertisement messages via unicast. This is not correct. Bare teaches sending payload traffic directly via unicast after a MAC address of a host is determined using broadcast Address Resolution Protocol messages. As seen in column 3, lines 61-63, ARP packets are broadcast packets in IP protocol and used to directly find the MAC address of a target host.

The Office Action further asserts that Bare teaches that the invention overcomes unnecessary and excessive traffic across the networks allowing the bandwidth to be used more effectively. However, as taught in column 2, lines 6-25, the motivation for the Bare invention is to "provide a solution to the problem solved with bridges and routers, but without the cost/performance impacts and topology constraints they introduce". Consequently, Bare's primary motivation teaches directly away from the claimed invention.

For all of the above reasons, it is respectfully submitted that claim 3 is not obvious in view of Dobbins et al. and Bare. Nonetheless, the Office Action states that applicant should focus more on defining what traffic engineering protocol does and how it is used. Consequently, claim 3 is amended to further clarify what traffic engineering does and how it is used. The rejection of claims 2-9 and 13 is thereby traversed.

With respect to claim 17, the Office Action states that Dobbins et al. teach a traffic engineering route exchange router in a network that uses an open shortest path first routing protocol. As explained above with reference to claim 3, this is incorrect.

The Office Action further alleges that Dobbins et al. teach a traffic engineering link-state database compiled using traffic engineering link-state advertisement messages. However, Dobbins et al. teach that an "important feature is that each switch independently handles call rerouting". This teaches directly away from the claimed invention that claims that only TE-X routers compute explicit edge-to-edge constraint-base routes through the network using the TE-LSDB.

The Office Action further states that Dobbins et al. teach a messaging system for exchanging TE-LSA messages with peer TE-Xs in the network using a bi-directional communications connection to set up with each peer TE-X. However, the cited text in column 16, lines 56-62 refers to a traffic service available on every switch in the network. This teaches directly away from the invention claimed in claim 17.

The Office Action states that Bare teaches receiving directly the unicast from OSPF routers in the network. Applicant acknowledges that Bare teaches receiving **payload traffic** directly via unicast. However, Bare fails to teach or suggest that TE-LAS are unicast. Furthermore, Bare does not teach or suggest traffic engineering or determining a closest TE-X in the network. Nor does Bare teach or suggest a bi-directional communications setup. Bare teaches that each switch learns the address of each other switch in the network and unicasts payload directly to other switches, but does not teach or suggest bi-directional communications setup.

In order to focus more on defining what traffic engineering protocol does and how it is used, claim 17 is amended to claim that the TE-LSDB is used for computing explicit edge-to-edge constraint-based routes through a network and that a modified OSPF routing protocol is used for constraint route distribution and constraint path computation. This is neither taught nor suggested in any known reference and the rejection of claims 17 and 20-29 is traversed.

With respect to claim 30, the Office Action states that Dobbins et al. teach configuring at least one OSPF router in the OSPF network as a traffic engineering route exchange router. However, the cited text states that IP routers advertise the routability of networks using IP RIP or OSPF. These advertisements are also collected and periodically resent. It is not understood how advertising routability is associated with the constraint-

based routes required for traffic engineering. Furthermore, the IP routers advertise reachability and the advertisements are collected and periodically resent, which teaches directly away from the invention claimed in claim 30.

The Office Action further states that Dobbins et al. teach provisioning at least one TE-X to advertise to other OSPF routers in the network. However, the cited text teaches that the switches use a distributed link state protocol. The link state protocol is used because it provides a fully-connected meshed topology called a directed graph that is distributed in each switch. This teaches directly away from the claimed invention.

The balance of the arguments applied against claim 30 have been addressed above and those traversals apply.

In order to focus more on defining what traffic engineering does and how it is used, claim 30 is amended to claim configuring at least one OSPF router that supports constraint path set up to provide edge routers in the network with access to explicit constraint routes and provisioning the other OSPF routers in the network to obtain an explicit edge-to-edge path satisfying specified traffic engineering constraints.

In addition to the limitations above, which are not met by the cited art, the added limitations to claim 30 are not taught or suggested in any reference known to the applicant or made of record in this application. The rejection of claim 30-37 is thereby traversed.

With respect to claim 38, the Office Action alleges that Dobbins et al. teach a plurality of OSPF Routers, at least one of the OSPF Routers being provisioned to function as a traffic engineering exchange router. As explained above in detail, traffic engineering requires constraint routing. Dobbins et al. teach distributed connection-oriented services for switched communications networks. This teaches directly away from constraint routing. With respect to the reminder of the limitations of claim 38, each has been traversed above in detail with reference to claims 1, 17 and 30 and those traversals apply.

Nonetheless, in order to focus more on defining on what the traffic engineering protocol does and how it is used, claim 38 is amended to claim that at least one of the OSPF routers that supports constraint path setup is provisioned to function as a traffic engineering route exchange router to provide edge routers in the network with explicit constraint routes, the remainder of the routers being provisioned to send traffic engineering

link state advertisements messages directly via unicast to only the nearest one of the at least one TE-X, to enable the nearest TE-X to maintain a traffic engineering link state database for computing explicit constraint-based traffic engineering routes between edge routers in the data network.

No combination of Dobbins et al. and Bare teach or suggest the invention claimed in claim 38 and the rejection of claims 38-40 and 45 is traversed.

With respect to claims 10-12, 14-16, 18-19 and 41-44 traversals of the rejection of claims 1, 17, 30 and 38 apply and the rejections of claims 10-12, 14-16, 18-19 and 41-44 are traversed.

In view of the amendments made to claims 3, 17, 30 and 38, claims 2-45 that remain pending in this application are considered to be in condition for immediate allowance. Favourable reconsideration and early issuance of a Notice of Allowance are requested.

Respectfully submitted,
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